

New Gastropods from Namibia, South Australia, and Cuba

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ABSTRACT Three new gastropods are described as potential biogeographical index taxa. These new mollusks include the naticid *Euspira massieri* new species (from Namibia), the muricid *Pterochelus webbi* new species (from the Great Australian Bight, South Australia), and the conid *Jaspidiconus prugnaudorum* new species (from the Jardines de la Reina Archipelago, Cuba). These new index species will be used for defining biogeographical units within their respective oceans and will be incorporated into an upcoming book on worldwide marine molluscan biogeography.

KEY WORDS Gastropods, Naticidae, *Euspira*, Muricidae, *Pterochelus*, Conidae, Conilithinae, *Jaspidiconus*, Namibia, Great Australian Bight, South Australia, Cuba.

INTRODUCTION

The authors, along with co-worker Robert F. Myers, are in the final stages of preparation for a large and comprehensive book on worldwide marine molluscan biogeography ("Illustrated Guide to Marine Molluscan Biogeography: Tropical and Warm Temperate Seas"). While assembling the lists of biogeographical index species that will be illustrated in the book, we found that a number of important taxa were still unnamed. In several previous papers in this series of preparatory works, we described a number of important index taxa in the families Conidae, Volutidae, Fascioliidae, Olividae, Harpidae, and Cypraeidae. Out of the over 1800 species that will be illustrated in the biogeography book, only three remained new to science, including members of the families Naticidae, Muricidae, and Conidae. These important index taxa are described in the following sections. The holotypes of the new species are deposited at three museums: the Los Angeles County Museum of Natural History, Los Angeles, California (with an LACM catalog

number); the South Australian Museum, Adelaide, South Australia (with an SAMA catalog number); and the National Museum of Natural History, Paris, France (with an MNHN IM catalog number).

SYSTEMATICS

Class Gastropoda
 Subclass Orthogastropoda
 Superorder Caenogastropoda
 Order Littorinimorpha
 Infraorder Mesogastropoda
 Superfamily Naticoidea
 Family Naticidae
 Subfamily Polinicinae
 Genus *Euspira* Agassiz, 1838

Euspira massieri new species
 (Figures 1, 4A, 4B)

Description. Shell of average size for genus, thin, globose and inflated, with rounded shoulder and sides; spire slightly elevated, with rounded whorls; subsutural area slightly flattened; umbilicus present, narrow, deeply

perforate; anterior end of umbilicus with single large, prominent raised cord; columellar area with large, prominent, roughly-rectangular parietal shield along posterior one-third of aperture; white parietal shield adherent, extending onto body whorl; anterior two-thirds of parietal shield thin, bladelike, not adherent, with large indented area that exposes entire umbilical opening; edge of indented area with large dark brown stain; aperture wide, flaring, roughly semicircular; shell color dark tan or brown, with pure white anterior end of body whorl and base of shell; interior of umbilicus white or pale tan, with anterior umbilical cord being darker tan; interior of aperture dark tan or brown on posterior area, turning white on anterior area.



Figure 1. *Euspira massieri* Petuch and Berschauer new species

Type Material: Holotype. Length 38.6 mm, width 35.4 mm, 275-300 m depth south of Walvis Bay, Namibia. LACM 3513. **Other Material Examined.** 2 specimens, heights 35 mm and 37 mm, widths 32 mm and 34 mm, from the same depths and locality as the

holotype, in the research collection of the senior author. 2 specimens, heights 32.2 mm and 21.8 mm, widths 30.5 mm and 20.5 mm, from the same depth and locality as the holotype, in the research collection of the junior author.

Type Locality. Trawled by commercial fishing boats from 275-300 m depths south of Walvis Bay, Namibia.

Distribution. At present, known only from the coast of Namibia, from south of Walvis Bay to Luderitz.

Ecology. The new species prefers organic-rich mud sea floors at depths of around 300 m. Here, it occurs along with other Namibian endemic gastropods such as the aporrhaid *Aporrhais pesgallina*, and the volutes *Athleta massieri* and *Athleta easoni*. For more details on the structure of the deep water Namibian ecosystems, see Petuch and Berschauer (2017a and 2017b).

Etymology. Named for Werner Massier of Swakopmund, Namibia, inspired naturalist and well-known shell dealer, who first recognized the species as being new to science.

Discussion. *Euspira massieri* is most similar to the widespread Eastern Atlantic *Euspira fusca* (Blainville, 1825), which ranges from the North Sea (Faroe Islands) south to Angola. The new Namibian endemic species differs from its wide-ranging congener in having a narrower and more laterally-compressed shell outline, in having a proportionally smaller and narrower umbilicus, in having a prominent anterior umbilical cord, and in having the entire anterior end of the body whorl and shell base being pure white. The most conspicuous difference between *E. massieri* and *E. fusca* is seen in the form and structure of the parietal shield along the columellar side of the aperture. In the new species, the parietal shield is proportionally

small and covers only around one-third of the parietal area, and extends onto the body whorl as a large white rectangular callus-like structure at the posterior end of the aperture. In *E. fusca*, the parietal shield is much better developed, extending over two-thirds of the length of the aperture and partially closes off the umbilicus. Although being proportionally larger and better-developed, the parietal shield structure of *E. fusca* does not have a large, adherent callus-like structure at the posterior end of the columellar area. This large white rectangular callus is unique to *E. massieri*.

Infraorder Neogastropoda

Superfamily Muricoidea

Family Muricidae

Subfamily Muricinae

Genus *Pterochelus* Jousseaume, 1880

Pterochelus webbi new species
(Figures 2, 4E, 4F)

Description. shell small for genus, very elongated and slender, thin and delicate; spire high and protracted, almost same length as body whorl; shoulder and subsutural area sloping; body whorl and spire with 3 varices per whorl; siphonal canal elongated and straight, ornamented with 3 narrow, thin, web-like varices, recurved dorsally at anterior tip; body whorl and siphonal canal varices proportionally small and undeveloped, thin and delicate, translucent, frilly, with crenulated edges; posterior ends of body whorl and spire varices with single large, pointed, spine-like blade that projects posteriorly; apertural sides of posterior blades with large open canal, with last varix having direct connection to apertural opening; single large elongated knob present between each pair of varices on body whorl and spire; body whorl ornamented with 3 large spiral cords, with largest corresponding to open canal of large blade; siphonal canal ornamented with

8 thin, small, closely-packed spiral cords; entire surfaces of body whorl, spire, and siphonal canal covered with extremely numerous fine raised frills that correspond to growth increments, giving shell rough, fimbriated, highly-textured appearance; body whorl and siphonal canal color uniform translucent white; single pale tan spot present on each intravarical knob; early whorls and protoconch pale yellow-tan; aperture proportionally large, oval; protoconch large, bulbous, rounded, composed of 2 whorls.



Figure 2. *Pterochelus webbi* Petuch and Berschauer new species

Type Material. Holotype: Length 34.9 mm, width 19.6 mm, from 150 m depth in the Great Australian Bight, South Australia. SAMA D49319. **Other Material Examined:** length 41 mm, width 24 mm, from the same depth and locality as the holotype, in the research collection of the senior author; length 37 mm, width 21 mm, from the same locality and depth as the holotype, in the collection of Adrian Bishop, Yorketown, South Australia.

Type Locality. Dredged by the commercial trawler *Lorna Dorn*, from 150 m depth southwest of Ceduna, South Australia (between East Longitude 130 and 132 degrees), in the Great Australian Bight. The holotype was collected on November 13, 1996.

Distribution. At present, known only from the Great Australian Bight, Australia.

Ecology. This delicate new muricid prefers depths of 150 m, probably on shell rubble sea floors and sponge beds.

Etymology. The taxon honors Captain Neil Webb, captain of the trawler *Lorna Dorn*, who collected the type lot and generously donated the specimens for scientific study.

Discussion. Of the known *Pterochelus* species, *P. webbi* is most similar to the wide-ranging *P. duffusi* Iredale, 1936 (Figure 4 G and H), which occurs from Queensland to Tasmania and South Australia. The new Great Australian Bight species differs from *P. duffusi* in being a much more slender and elongated shell with a straighter siphonal canal, in having proportionally-smaller and less-developed varical wings, in being a less-colorful shell that lacks any brown mottling, and in being a much more sculptured shell that is covered with extremely numerous fine frilly scales. *Pterochelus webbi* is also similar to *P. undosus*

(E. Vokes, 1993) from southern Western Australia, but differs in being a much smaller, more slender, and elongated shell, in having much narrower and less-developed varical wings, and in having a pure white shell color, as opposed to the brown and dark brown-banded shell of *P. undosus*. Webb's Murex is a component of a distinctive and mostly-unexplored malacofauna that occurs in the deeper waters of the Great Australian Bight, from offshore of Eucla, Western Australia to Ceduna, South Australia. Other recent discoveries, from the same depth range and general area as *P. webbi*, include the delicate and elongated fasciolariid *Fusinus bishopi* Petuch and Berschauer, 2017 and the deep water cypraeid *Austrocypraea reevei bishopi* Petuch, Berschauer and Waller, 2017 (see Petuch, Berschauer, and Waller, 2017 for more details on the ecology of the deep water offshore areas of the Great Australian Bight).

Superfamily Conoidea

Family Conidae

Subfamily Conilithinae

Genus *Jaspidiconus* Petuch, 2004

Jaspidiconus prugnaudorum new species
(Figures 3, 4C, 4D)

Description. Shell of average size for genus, cylindrical and fusiform, with elevated, subpyramidal spire; shoulder sharply angled and carinate, edged with 14-16 small rounded pustules; sutures of spire whorls also edged with row of small pustules; body whorl ornamented with 18-20 rows of small pustules, which become progressively smaller and less developed toward anterior end; anterior half of body whorl sculpted with 12 deeply-incised spiral sulci; some individuals (like specimen in collection of senior author) are smoother, with less-developed pustules that are primarily confined to the anterior half of body whorl;

shoulder carina of smoother specimens lacking distinct pustules, having only slight undulations; shell base color bright pink, overlaid with 2 broad bands of large amorphous salmon-orange patches; paler pink band present around body whorl just anterior of mid-body line, separating bands of salmon-orange patches; spire pale pinkish-white with widely-scattered darker pink elongated flammules; small darker pink dots present between pustules on shoulder carina and sutural areas of spire; early whorls and protoconch pale salmon-orange; protoconch proportionally large, bulbous, composed of 2 whorls; aperture narrow, widening slight toward anterior end, bright pink within interior.



Figure 3. *Jaspidiconus prugnaudorum* Petuch and Berschauer new species

Type Material. Holotype: Length 22.2 mm, width 11.0 mm, from Cayo Anclitas, Jardines de la Reina Archipelago, Cuba. MNHN IM-2000-338883. **Other Material Examined:** length 21 mm, width 11 mm, from the same locality and depth as the holotype, in the research collection of the senior author; length 21 mm, from the same locality and depth as the holotype, in the collection of Fabrice Prugnaud, Tours, France.

Type Locality. The new cone was collected at night, 10 m depth on a muddy carbonate sand sea floor, off Cayo Anclitas, Jardines de la Reina Archipelago, Camaguey Province, southeastern coast of Cuba.

Distribution. At present, known only from the Jardines de la Reina Archipelago, off southeastern Cuba, and the new species is probably endemic to this isolated group of islands.

Ecology. The new Jardines de la Reina endemic species prefers open muddy carbonate sand sea floors in 10 m depths.

Etymology. Named for Fabrice Prugnaud of Tours, France, his father Alain Prugnaud, and his brother Bruno Prugnaud, who, together, made shell collecting a family passion and who kindly donated the type specimens of the new Cuban cone.

Discussion. Of the known Caribbean *Jaspidiconus* species, *J. prugnaudorum* most closely resembles, in both size and shape, *J. boriqwa* Petuch, Berschauer, and Poremski, 2016 from Puerto Rico. The new Cuban species differs from its Puerto Rican congener in having a bright orange and salmon shell color, in having rows of small pustules on the body whorl, shoulder, and spire, and in lacking the purple and brown base color and large dark brown flammules that are characteristic of *J.*

boriqua. The new species is also similar to *J. culebranus* Petuch, Berschauer, and Poremski, 2016 from Culebra Island (between Puerto Rico and St. Thomas) but differs in being a much more colorful shell (bright pink and salmon in *J. prugnaudorum* as opposed to uniformly pure white or pale yellow white in *J. culebranus*) and in being a more sculptured shell, with rows of small pustules and deeply-incised spiral sulci (see Petuch, Berschauer, and Poremski, 2016 for illustrations and discussions of the Puerto Rican and Culebran endemic cones). At present, *J. prugnaudorum* has been collected only on Cayo Anclitas, but is probably present on all of the islands of the isolated Jardines de la Reina Archipelago.

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Figure 4. A, B = *Euspira massieri* Petuch and Berschauer new species - holotype 32.2 mm in length; C, D = *Jaspidiconus prugnaudorum* Petuch and Berschauer new species - holotype 22.2 mm in length; E, F = *Pterochelus webbi* Petuch and Berschauer new species - holotype 34.9 mm in length; G, H = *P. duffusi* Iredale, 1936 - trawled off Cape Morton, Queensland, Australia, 35.1 mm in length (images courtesy of Roland Houart).